IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Glenn D. Williams

Group Art Unit: 1732

Examiner: Jeffrey Michael Wollschlager

Serial No.: 10/731,794

Filed: December 9, 2003

For: METHOD OF HEATING IN-MOLD COATING COMPOSITION

Attorney Docket No.: IACG 04147 PUS

AMENDED APPEAL BRIEF UNDER 37 C.F.R. § 41.37(d)

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Sir:

This is an amended Appeal Brief in response to the Notice Of Non-Compliant Appeal Brief mailed March 1, 2007. This corrected Appeal Brief provides changes to the Status Of Claims section as required by the notice. Additionally, subsequent to the January 8, 2007 filing of the original Appellate Brief, the Assignment to the real party in interest was recorded in the United States Patent and Trademark Office. Consequently, the real party in interest section has been revised to reflect the recording of the Assignment. Furthermore, the evidence appendix, which originally contained a copy of the patent Assignment, has been revised by deleting the copy of the patent Assignment. Additionally, the Certificate of Electronic Filing has been deleted. All other sections of the Appeal Brief originally filed on January 8, 2007 remain unchanged.

I. REAL PARTY IN INTEREST

The real party in interest is International Automotive Components Group, LLC ("Assignee"), a limited liability company organized and existing under the laws of the state of Delaware, whose full post office address is c/o WL Ross & Co., LLC, 600 Lexington Avenue, 19th Floor, New York, New York 10022, as set forth in the assignment dated October 11, 2006. The assignment to Assignee was recorded in the U.S. Patent and Trademark Office on February 9, 2007, at Reel 018866/Frame 0941.

II. RELATED APPEALS AND INTERFERENCES

There are no appeals or interferences known to the Appellant, the Appellant's legal representative, or the Assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 1-16 were originally filed in this application. During prosecution, claims 7-16 were cancelled and new claim 17 was added such that claims 1-6 and 17 are now pending in this application. Claims 1-6 and 17 have been rejected and are the subject of this appeal.

IV. STATUS OF AMENDMENTS

An amendment was filed on June 6, 2006, and entered by the Examiner subsequent to final rejection. There are presently no pending amendments.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Independent claim 1 recites a method for forming a polyurethane skin for an interior part of a vehicle. As shown in Figure 1, the method comprises providing an air assisted nozzle at 12 capable of delivering an atomizing air stream. (Spec., p. 5, lines 22-27 and p. 6, lines 1-3). An in-mold coating composition is heated to a temperature above ambient temperature to create a heated in-mold coating composition. (Spec., p. 6, lines 6-11). The

heated in-mold coating composition is sprayed at 22 towards a forming surface with the air assisted spray nozzle to create an in-mold coating layer. (Spec., p. 6, lines 3-8). A layer of polyurethane is applied over the in-mold coating layer at 26 to form the polyurethane skin. (Spec., p. 6, lines 14-16).

Dependent claim 6 recites the method of claim 1 wherein the step of heating the in-mold coating composition is performed on the in-mold coating composition prior to entry of the in-mold coating composition into the spray nozzle and to a temperature of between 100°F and 180°F. (Spec., p. 8, lines 1-7).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. Claims 1-6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,662,996 issued to Jourquin (hereinafter "Jourquin '996") in view of U.S. Patent No. 5,716,588 issued to Nielsen (hereinafter "Nielsen '588").

B. Claim 17 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Jourquin '996 in view of Nielsen '588 and further in view of U.S. Patent No. 4,509,684 issued to Schowiak (hereinafter "Schowiak '684").

VII. ARGUMENT

A. Claims 1-6 are patentable under 35 U.S.C. § 103(a) over Jourquin '996 in view of Nielsen '558.

1. Claim 1

Claim 1 recites a method of forming a polyurethane skin for an interior part of a vehicle by providing an air assisted spray nozzle that delivers an atomizing air stream. An in-mold coating composition is heated to a temperature above ambient. The heated in-mold coating composition is sprayed onto a forming surface by the air assisted spray nozzle to create

an in-mold coating layer over which a layer of polyurethane is applied to form the polyurethane skin.

Jourquin '996 recites a method for manufacturing a trim part having a polyurethane skin, a rigid synthetic carrier and a polyurethane foam in between the skin and the rigid carrier. (Col. 3, lines 31-39). In a first embodiment, the polyurethane skin is produced from a light-stable colored polyurethane elastomer without an in-molding coating. (Col. 3, lines 40-63). In a second embodiment, a light-stable colored in-mold coating is applied to a mold surface together with a polyurethane elastomeric layer to form the polyurethane skin. (Col. 3, lines 64-67 and col. 4, lines 1-3). In a third embodiment, the polyurethane skin is produced from a colored thermoplastic urethane (TPU) without an in-mold coating. (Col. 4, lines 4-18).

Nielsen '558 recites methods for spraying liquid compositions admixed with compressed fluids to form solid particulates, coating powders, catalyst materials and to apply drier water-borne coatings from water-borne coating compositions having conventional water levels of at least 70% water. (Col. 1, lines 12-18 ; col. 4, lines 66-67; col. 5, lines 1-14 and col 22, lines 40-45). Nielsen '558 defines a compressed fluid as a fluid in either a gaseous or liquid state, or a combination thereof, depending on the particular temperature and pressure, but is in a gaseous state at standard conditions of 0°C and 1 atmosphere pressure (STP). (Col. 5, lines 48-56). Typical compounds for compressed fluid are CO_2, N_2O_3, NH_3, etc. (Col. 5, lines 60-67). Moreover, the liquid composition is prepared for spraying by admixing at least one compressed fluid to form a liquid mixture in a closed system and in an amount to render the liquid mixture capable of forming a substantially decompressive spray. (Col. 8, 42-47 and col. 20, lines 43-52). The liquid mixture is passed through an orifice, whereupon exposure to the external temperature and pressure, e.g. STP, the liquid mixture forms a decompressive spray suitable for forming solid particles or drier water-borne films by rapid evaporation of the respective solvent or water. (Col. 8, lines 47-55). Nielsen '558 theorizes that the depressurizing of the spray by the compressed fluid enhances this evaporation process. (Col.

10, lines 37-44). Nielsen '558 further recites that spray nozzles used for ***conventional airless*** and ***air-assisted airless sprays*** are suitable for spraying the liquid mixture. (Col. 10, lines 45-51). The temperature of the spray may also be increased by a heated assist gas jet to counteract the cooling effects resulting from decompression of the compressed fluid. (Col. 12, lines 10-12).

Neither Jourquin '996 nor Nielsen '558, independently or in combination, disclose, teach or suggest the present invention recited in claim 1. More specifically, neither Jourquin '996 nor Nielsen '558 disclose, teach or suggest providing ***an air assisted spray nozzle*** that delivers ***an atomizing air stream*** to spray a ***heated in-mold coating*** towards a forming surface to form an in-mold coating layer. Accordingly, the Examiner has failed to demonstrate a *prima facie* case of obviousness to render claim 1 unpatentable.

The Examiner admits that Jourquin '996 fails to teach "providing and utilizing an air assisted spray nozzle for delivering and atomizing air stream and heating the in-mold coating composition to a temperature above the ambient temperature." (Office Action at page 2-3). The Examiner relies on Nielsen '558 and posits that Nielsen '558 teaches a method wherein "they provide and utilize an air assisted spray nozzle capable of delivering an atomizing air stream and heating the in-mold composition to a temperature above the ambient temperature" by referencing Nielsen '558 at col. 11, lines 62-66 and col. 12, lines 9-31. (Office Action at page 3). This is however not the case. Nielsen '558 discloses using a "gaseous jet applied to the spray, such as compressed gas jets used to assist atomization in ***air-assisted airless sprays*** or to ***modify the shape of the spray pattern***." An air-assisted airless spray is produced from a nozzle which is distinctly different from an air assisted spray nozzle. An air assisted spray nozzle, which is the nozzle portion of an air spray gun, delivers an atomizing air stream from the center of the nozzle which surrounds the coating as it leaves the nozzle, breaking the coating up into droplets, which may be further broken down into a spray pattern by additional jets of compressed air. The atomizing air stream has an air flow rate of at least 7 cfm, where air flow

rates as high as 35 cfm are common. However, the air-assisted airless spray nozzle does not deliver an atomizing air stream from the center of the nozzle. Rather, the air-assisted airless spray nozzle hydraulicly forces the coating through an orifice, where the coating is ***airlessly*** atomized by decompression as it escapes to atmospheric pressure. The "air-assisted" of the "airless" nozzle merely adds about 2 cfm of air flow from a non-center nozzle location, directed at the ends of the spray pattern, to eliminate the "tails" or heavy edges, thereby minimizing overlapping lines or stripes. The 2 cfm of air flow is insufficient to atomize the coating. Thus, an air-assisted airless spray nozzle is both structurally distinct from an air assisted spray nozzle and incapable of delivering an atomized air stream.

Moreover, a gaseous jet applied to the spray to modify the shape of the spray pattern is not delivering an atomized air stream and further, does not suggest an air assisted spray nozzle. Specifically, Nielsen '558 recites that the "assist gas jets typically have little or no effect on the atomization of a decompressive spray" (col. 12, lines 3-5), which clearly indicates a nozzle design that is neither an air assisted spray nozzle nor capable of delivering an atomized air stream. Accordingly, Appellant believes claim 1 to be in a condition for allowance.

Furthermore, there is no motivation to combine the teachings of Jourquin '996 with Nielsen '558 to teach the present invention. The Examiner states that the suggestion to combine the teachings of Jourquin '996 with the teachings of Nielsen '558 comes for the references themselves. (Office Action at page 5). "Jourquin et al. teaches a method of forming a polyurethane skin for an interior part having an in-mold coating applied with a spray nozzle. It is noted the composition employed by Jourquin et al. is a water-borne composition (col. 6, lines 25-33 and 55-67) and that Jourquin et al. discloses the solvent evaporation time in Example 2 (col. 7, lines 18-57). Nielsen et al. explicitly states the invention is an improved method by which water-borne coatings having conventional water levels can be sprayed, but with drier coating films applied in order to improve coating performance and shorten drying

times. (Col. 1, lines 44-48; also see col. 11, lines 53-60)." (Office Action at pages 5-6). This is however not the case. Jourquin '996 does not remotely disclose, teach or suggest that the in-mold coating is a water-borne composition. The Examiner has incorrectly stated that col. 6, lines 25-33 and 55-67 discloses a water-borne in-mold coating. Rather, the cited paragraphs are for the first embodiment of Jourquin '996, which teaches a method of making a trim part including a polyurethane skin without an in-mold coating. Moreover, the reference to water at col. 6, lines 25-33 is for the polyurethane foam element of the trim part, wherein the water is a blowing agent which chemically reacts with the isocynate component to form the foam. Additionally, the reference to 0.06 percent of water at col. 6, lines 55-67 is for the polyurethane rigid carrier. Rather, Jourquin '996 discusses the second embodiment, which includes a polyurethane skin with an in-mold coating, at col. 1, lines 64-67, col. 2, lines 1-3, and col. 7, lines 19-57, where there is no disclosure or suggestion of a water-borne in-mold coating. Therefore, the references themselves do not provide a suggestion to combine the teachings of Jourquin '996 with Nielsen '558 to teach the present invention.

Moreover, Nielsen '558 teaches away from using an air assisted nozzle that delivers an atomizing air stream to spray a heated in-mold coating composition to avoid the problems of runs, sags and surface finish defects pointed out by the Appellant in the Background Art section at page 2, lines 10-13. "[U]sing an air spray gun...despite having a feathered spray pattern and having the same droplet size as the decompressive sprays, the air spray [temperature of 50°C] applied poor coatings that were very non-uniform...which caused runs and sags even in relatively thinly applied coatings." (Col. 32, lines 37-65). Nielsen '558 teaches that the combination suggested by the Examiner would not operate as the Appellant's present invention and thus, one of ordinary skill in the art would not make this combination. Accordingly, Appellant respectfully request withdrawal of the 35 U.S.C. § 103(a) rejection of claim 1.

2. Claim 2

Claim 2 depends from independent claim 1 and contains all of the limitations of claim 1, as well as additional limitations which further distinguishes it from the cited references. Therefore, claim 2 is patentable over the combination of Jourquin '996 and Nielsen '558.

3. Claim 3

Claim 3 depends from independent claim 1 and contains all of the limitations of claim 1, as well as additional limitations which further distinguishes it from the cited references. Therefore, claim 3 is patentable over the combination of Jourquin '996 and Nielsen '558.

4. Claim 4

Claim 4 depends from independent claim 1 and contains all of the limitations of claim 1, as well as additional limitations which further distinguishes it from the cited references. Therefore, claim 4 is patentable over the combination of Jourquin '996 and Nielsen '558.

5. Claim 5

Claim 5 depends from independent claim 1 and contains all of the limitations of claim 1, as well as additional limitations which further distinguishes it from the cited references. Therefore, claim 5 is patentable over the combination of Jourquin '996 and Nielsen '558.

6. Claim 6

Claim 6 depends from independent claim 1 and is likewise patentable for at least the foregoing reasons independent claim 1 is patentable. Furthermore, dependent claim 6 is patentable over the cited art for at least the following additional reasons. Dependent claim 6 recites the limitation of "wherein the step of heating the in-mold coating composition is performed on the in-mold coating composition prior to entry of the in-mold coating composition into the spray nozzle." Neither Jourquin '996 nor Nielsen '558, independently or in

combination, disclose, teach or suggest that the in-mold coating composition is heated prior to entry into the spray nozzle.

The Examiner suggests that col. 2, lines 25-29 and col 1, lines 20-27 of Nielsen '558 discloses heating a coating composition prior to entry into the spray nozzle. (Office Action at page 4). This is however not the case. Nielsen '558 recites at col. 2, lines 25-29 that the liquid mixture is preferably heated to a temperature to compensate for the drop in spray temperature due to the expansion cooling of the decompressive fluid. Nielsen '558 discloses at col. 12, lines 10-31 that the liquid mixture may be heated by gas flow or assist gas jets. However, this is subsequent to the entry of the coating composition into the spray nozzle. Nielsen '558 never teaches, discloses or suggest that the coating composition is heated prior to entry into the spray nozzle. Moreover, Nielsen '558 discloses again at col 1, lines 20-27 that the coating composition may be heated "by supplying a relatively small amount of heated gas locally to just the spray, instead of heating the entire chamber," which is clearly heating the coating mixture subsequent to entry into the spray nozzle. Thus, dependent claim 6 is patentable over the cited prior art for at least the above additional reasons.

B. Claim 17 is patentable under 35 U.S.C. § 103(a) patentable over Jourquin '996 in view of Nielsen '558 and further in view of Schowiak '684.

1. Claim 17

Claim 17 depends from independent claim 1 and contains all of the limitations of claim 1, as well as additional limitations which further distinguishes it from the cited references. Therefore, claim 17 is patentable over the combination of Jourquin '996, Nielsen '558 and Schowiak '684.

The Appeal Brief fee as applicable under the provisions of 37 C.F.R. § 41.20(b)(2) has been previously paid and no additional fees are believed to be due in connection

with this paper. Please charge any additional fee or credit any overpayment in connection with this filing to our Deposit Account No. 02-3978.

Respectfully submitted,

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Enclosure - Appendices

VIII. CLAIMS APPENDIX

1. A method of forming a polyurethane skin for an interior part of a vehicle, comprising:

providing an air assisted spray nozzle capable of delivering an atomizing air stream;

heating an in-mold coating composition to a temperature above ambient temperature to create a heated in-mold coating composition;

spraying the heated in-mold coating composition towards a forming surface with the air assisted spray nozzle to create an in-mold coating layer; and

applying a layer of polyurethane over the in-mold coating layer to form the polyurethane skin.

2. The method of claim 1 wherein the step of heating the in-mold coating composition is performed by heating the atomizing air before the atomizing air is provided to the spray nozzle.

3. The method of claim 2 wherein the atomizing air stream is heated to a temperature of between 100˚F and 200˚F.

4. The method of claim 2 wherein the atomizing air stream is heated to a temperature of between 120˚F and 160˚F.

5. The method of claim 1 wherein the step of applying the layer of polyurethane is performed by spraying a layer of aromatic polyurethane over the in-mold coating layer after a flash cycle.

6. The method of claim 5 wherein the step of heating the in-mold coating composition is performed on the in-mold coating composition prior to entry of the in-mold coating composition into the spray nozzle, and wherein the in-mold coating is heated to a temperature of between 100˚F and 180˚F.

17. The method of claim 1 further comprising:

providing a color manifold station that has a plurality of in-mold coating compositions that are of different colors; and

supplying one of the colored in-mold coating compositions from the manifold station to the air assisted spray nozzle.

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None